

CLAIMS

1. A device for injecting material in a plastic state into a moulding cavity (2), comprising particularly:

5 - a distributor (11) of material in a plastic state, comprising at least one outlet (23) for material in a plastic state, placed along a pre-set axis (4),

10 - an injection nozzle (10) comprising at least one component (33) which is connected to the distributor (11) by a detachable connection means and defines for the injection nozzle (10) a front surface (78) configured in such a way as to become integral with the moulding cavity (2), the injection nozzle (10) comprising at least one channel (15) for material in a plastic state, placed along said axis (4), placed in a fluid relationship with said outlet (23), and emerging in said front surface (78),

- controlled means (108), (113), (114) of blanking said channel (15),

20 characterised in that said detachable connection means comprises:

- means (49, 54, 56, 59, 90, 95, 99) of indexing the angular position of said front surface (78) in

relation to the distributor (11), around said axis (4), and

- locking means (31, 85) fixing said front surface (78) in relation to the distributor (11) in the  
5 relative angular position imposed by the indexing means (49, 50, 56, 59, 90, 95, 99).

2. A device according to claim 1, characterised in that the injection nozzle (10) comprises particularly a  
10 nozzle end piece (33) defining the front surface (78) and a nozzle body (32) inserted between the distributor (11) and the nozzle end piece (33) and connected to one and the other by a respective detachable connection means one of which, at least, is a detachable connection means and comprises:

15 - means (49, 54, 56, 59, 90, 95, 99) of indexing in a relative angular position around said axis (4),

- means (31, 85) of mutual locking in the relative angular position imposed by the indexing means (49, 54, 56, 59, 90, 95, 99).

20 3. A device according to claim 2, characterised in that the distributor (11) comprises a channel (16) for assembling a nozzle body (32), provided along said axis (4), and in that the nozzle body (32) is engaged coaxially in said channel (16) and defines said  
25 outlet (23).

4. A device according to any one of claims 1 and 2, characterised in that the distributor (11) comprises a channel (16) for assembling a support (13) for assembling the injection nozzle (10), provided along  
30 said axis (4), and a support (13) for assembling the injection nozzle (10), engaged coaxially in said channel (16), defining said outlet (23) and connected to the distributor (11) and to the injection nozzle

(10) by a respective connection means one of which, at least, is a detachable connection means and comprises:

- means (49, 54, 56, 59) of indexing in a relative angular position around said axis (4),

5       - means (31) of mutual locking in the relative angular position imposed by the indexing means (49, 54, 56, 59).

5. A device according to any one of claims 1 to 4, characterised in that the indexing means (49, 54, 56,  
10 59, 90, 95, 99) comprise a cottering (49, 90) parallel to said axis (4).

6. A device according to claim 5 in its relation of dependence in respect of claim 4, characterised in that the support (13) for assembling the injection  
15 nozzle (10) is connected to the distributor (11) and to the injection nozzle (10) by a connection means (31, 49, 54, 56, 59) comprising:

- means (49, 54, 56, 59) of indexing in a relative angular position around said axis (4),

20       - means (31) of mutual locking in the relative angular position imposed by the indexing means (49, 54, 56, 59),

and in that cottering (49, 90) is common to the means (49, 54, 56, 59) of indexing the assembly support  
25 (13) in an angular position relative to the distributor (11) and to the means (49, 54, 56, 59) of indexing the injection nozzle (10) in an angular position relative to the assembly support (13).

7. A device according to any one of the claims 1  
30 to 6, characterised in that the mutual locking means (31, 85) comprise a mutual clamping by ring (31, 85) annular of revolution around said axis (4), screwed by rotation around the latter.

8. A device according to any one of the claims 1 to 7, characterised in that the controlled blanking means (108) comprise at least one blanking pin (108) mounted with axial sliding inside said channel (15),  
5 between a blanking position of the latter and an open position of the latter, controlled means (113, 114) to make the pin (108) slide from one to the other of said positions, located on the opposite side from the injection nozzle (10) relative to the distributor (11)  
10 along said axis (4) and comprising controlled drive means (114), a component (113) for transmitting motion between the drive means (114) and the pin (108), placed in the axial extension of the latter, and a detachable means (125, 126) of connecting said component (113) and  
15 the pin (108) in an axial direction, allowing a relative free rotation around said axis (4), and means (118, 120) of indexing the pin (108) relative to the distributor (11) in a preset relative angular position around said axis (4).

20 9. A device according to claim 8 in its relation of dependence in respect of claim 3, characterised in that the means (118, 120) of indexing the pin (108) relative to the distributor (11) are means (118, 120) of indexing the pin (108) relative to the injection  
25 nozzle (32).

10. A device according to claim 8 in its relation of dependence in respect of claim 4, characterised in that the means (118, 120) of indexing the pin (108) relative to the distributor (11) are means (118, 120)  
30 of indexing the pin (108) relative to the support (13) for assembling the injection nozzle (10).

11. A device according to any one of the claims 8 to 10, characterised in that the indexing means (118, 20) comprise a cottering parallel to said axis (4).

5 12. A device according to any one of the claims 8 to 11, characterised in that the blanking pin (108) comprises a front surface (109) configured in such a way that it can become integral with the moulding cavity (2) in its position of blanking said channel (15).